

Background

Washington Expo to Stress Need for National Initiative To Launch Intelligent Machines Industry

The Challenge...

A whole new industry that integrates software, sensing and machines, one equal to computers or automobiles in terms of dollars, is ready to take off. There no longer are any ifs about it happening. The only question is whether the United States will lead the new initiative, thereby creating millions more new jobs and further protecting its national interests, or, whether the United States will let the opportunity slip through its fingers and let another nation or nations reap the benefits. The United States still has a choice, but not for long.

The Expo...

In order to demonstrate the point above, a Congressional Expo on Robotics and Intelligent Machines is scheduled from 8:30 a.m. to 7 p.m. September 30 in the House Cannon Caucus Room of the U.S. Capitol in Washington, D.C. The Manufacturing Task Forces of the U.S. Senate and House requested the Expo for the purpose of informing Congress about the intelligent machines industry and its critical importance to the nation's future in terms of increased competitiveness. The Expo is being presented by the Robotics and Intelligent Machines Cooperative Council (RIMCC), a volunteer advisory group created to accelerate and promote robotics technologies, and Sandia National Laboratories, a Department of Energy multiprogram science and engineering laboratory. The Expo will consist of exhibits, intelligent machine demonstrations, and will feature panel discussions with speakers from Congress, universities, federal laboratories and industry. Among the intelligent machines being demonstrated will be an advanced intelligent system for production of electronics, a robotic surgical assistant, a walking robot, a NASA Sojourner Mars rover, and "robugs," which are smaller than two inches square. Panel discussions will cover the opportunities and economic potential for the emerging U.S.

robotics and intelligent machines industry, and the need for a national initiative to ensure the United States is the world leader in the critical areas of equipment intelligence, sensing and controls. There also is a significant opportunity for the United States to be the global leader as a user and supplier of new types of intelligent machines. A news conference is scheduled to begin at 11:30 a.m. featuring key representatives from RIMCC as well as Vice President Gore who has been invited.

The Vision...

Robots already touch the lives of most Americans. Televisions and VCRs are assembled with the precision and speed of robotic machines. The bottling and canning industry has long made use of robotics, and our automobiles are being assembled with the aid of robotic arms. But machines are rapidly becoming “intelligent.” The integration of computers, sensors and robots is creating a whole new range of intelligent machines that are capable of hundreds of new applications, many still unforeseen, and many outside of traditional manufacturing. Transportation, health care, agriculture, the military and law enforcement, and even entertainment are just a few of the areas more recently benefiting or looking to benefit from robotics and intelligent machines. These new intelligent machines, both real and envisioned, are more flexible and readily adapt to changing environments. They complement, rather than replace, workers.

The development of intelligent machines helps industries’ quest for better and less expensive products, as well as workers’ desire for a safer work environment. Intelligent machines are poised to revolutionize the way in which we live, from the development of smart cars that drive themselves, robotic devices that make surgery safer and quicker, to small, autonomous robots that conduct military reconnaissance, and assistive devices that provide the elderly and handicapped with greater independence.

The Need...

The United States remains a leader in the areas of software, sensors, and motion control, all key elements to the development of intelligent machines. At the least, we need to protect our investment in those technologies by continually upgrading their performance and developing new applications for them. But we can do much more. We can coordinate development of these technologies into an integrated whole and bring about a new robotics and intelligent machines industry that benefits so many other industries and individuals, and strengthens our national security by bolstering our economic competitiveness. A national initiative is needed to do that, encompassing the support of industry, universities, national laboratories and government.

The Robotics and Intelligent Machines Cooperative Council, sponsored by the IEEE Robotics and Automation Society and the Robotic Industries Association, laid the groundwork

for that initiative in October 1996 with a National Needs Workshop on Robotics in Albuquerque, N.M. About 50 robotics experts used the forum to formulate a white paper titled, “The Future and Intelligent Machines, Charting the Path.” The experts believe the coupling of machines with sensors, software and computers – intelligent machines – promises a revolution as profound as the computer revolution. RIMCC estimates that robotics and intelligent machines can have an impact on 40 percent of the gross domestic product, compared with roughly 15 percent today in the manufacturing sector.

The federal government can play a vital role in the development of this initiative, similar to the role in played in stimulating the expansion of other major industries – automobiles, computers and airplanes. The government can first identify and promulgate the needs of robotics and intelligent machines. Secondly, the federal government can provide seed funding for national testbed centers, where government, university, and industry researchers work closely to bring new products to market. The investment will bring valuable dividends. For one, the federal government will shift a revenue drain (government’s current use of robotics and intelligent machines) to a revenue source (tax base and jobs from the new industries that will be created). The federal government can seize a tremendous opportunity that will enhance our nation’s security and well-being.